

Opportunistic observation of predation of Loggerhead turtle hatchlings by feral cats on Dirk Hartog Island, Western Australia

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Abstract

This note reports the opportunistic observation of predation of Loggerhead turtle hatchlings at Turtle Bay on Dirk Hartog Island, Western Australia. Data were collected on the movement patterns of three feral cats, fitted with GPS data-logger/radio-telemetry collars in the vicinity of turtle nests. This data as well as field observations demonstrate a distinct patrolling of Turtle Bay and surrounding areas. Furthermore, predation of turtle hatchlings by cats was confirmed by their presence in the stomach contents of one of the cats.

Keywords: feral cat, Loggerhead turtles, predation, Dirk Hartog Island

Introduction

Globally, Loggerhead turtles (*Caretta caretta*) inhabit tropical, sub-tropical and temperate marine waters (Bolten and Witherington 2003). Within Australia, they are found in the eastern, northern and western waters of the continent (Prince 1994; Limpus 2008). Loggerhead turtles are listed as 'Endangered' under the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999 and the IUCN Red List (IUCN 2009).

Predation by feral cats is known to have a deleterious impact on endemic land vertebrates and breeding bird populations on both offshore and oceanic islands around the world (van Aarde 1980; Moors & Atkinson 1984; King 1985; Veitch 1985; Bloomer & Bester 1992; Bester *et al.* 2002; Keitt *et al.* 2002; Blackburn *et al.* 2004; Martinez-Gomez & Jacobsen 2004; Nogales *et al.* 2004). Predation by feral cats on Green turtle hatchlings (*Chelonia mydas*) on Aldabra Atoll, Seychelles has also been demonstrated (Seabrook 1989), although the impact could not be fully determined.

Turtle Bay and environs of Dirk Hartog Island is a major nesting ground for Loggerhead turtles with 800–1500 females breeding each year between November and March (DEWHA 2010). Footprints of feral cats around turtle nests were observed during a pilot study to assess the efficacy of a baiting program to eradicate feral cats on the island (Algar *et al.* submitted).

Materials and Methods

In March 2009, sixteen feral cats were trapped on the island for a pilot study to assess bait efficacy. Two of these cats (DH27 and DH27.2) were caught near Turtle

Bay while another, MB8 was trapped close to the west coast (Figure 1). The cats were fitted with a GPS data-logger/radio-telemetry collars (small Feline/Possum GPS collar, weight: 105 g, dimensions: 55mm wide x 34 mm deep by 37 mm high under neck, Sirtrack Ltd, New Zealand), which collected and stored a location point every 40 minutes (DH27, DH27.2) and 10 minutes respectively (MB8). Cats were released at site of capture and not disturbed during the period of data collection.

A feral cat baiting program was conducted four weeks after the release of the cats (Johnston *et al.* 2009; Algar *et al.* submitted). Collars were retrieved following the death of individual cats, including DH27.2, following baiting. Cats DH27 and MB8 were shot at the conclusion of the study as they did not consume a toxic bait. No stomach analysis was conducted.

A 30 m section of beach to the west of Cape Inscription that encompassed an active turtle nest was inspected daily over 5 days for fresh feral cat activity. Observations and interpretations were made from the footprints made by cat(s), turtles, crabs and other species. Prints were cleared daily by sweeping the 'study area' with a broom.

Results

Each of these cats was male and weighed; DH27, 5.1 kg, DH27.2, 4.5 kg and MB8, 5.5 kg when trapped. A compilation of the location data derived from GPS data-logger collars, between 30 March and 30 April 2009, is shown in Figure 2. The data indicate almost linear walking patterns as the cats foraged along the beach. In addition, fresh cat tracks, thought to be MB8, were seen daily at the turtle nesting sites as shown in Figure 3. Toxicosis following ingestion of the poison '1080' (sodium monofluoroacetate) used in the feral cat baiting program often results in regurgitation of stomach contents. Vomitus of an entire turtle hatchling and

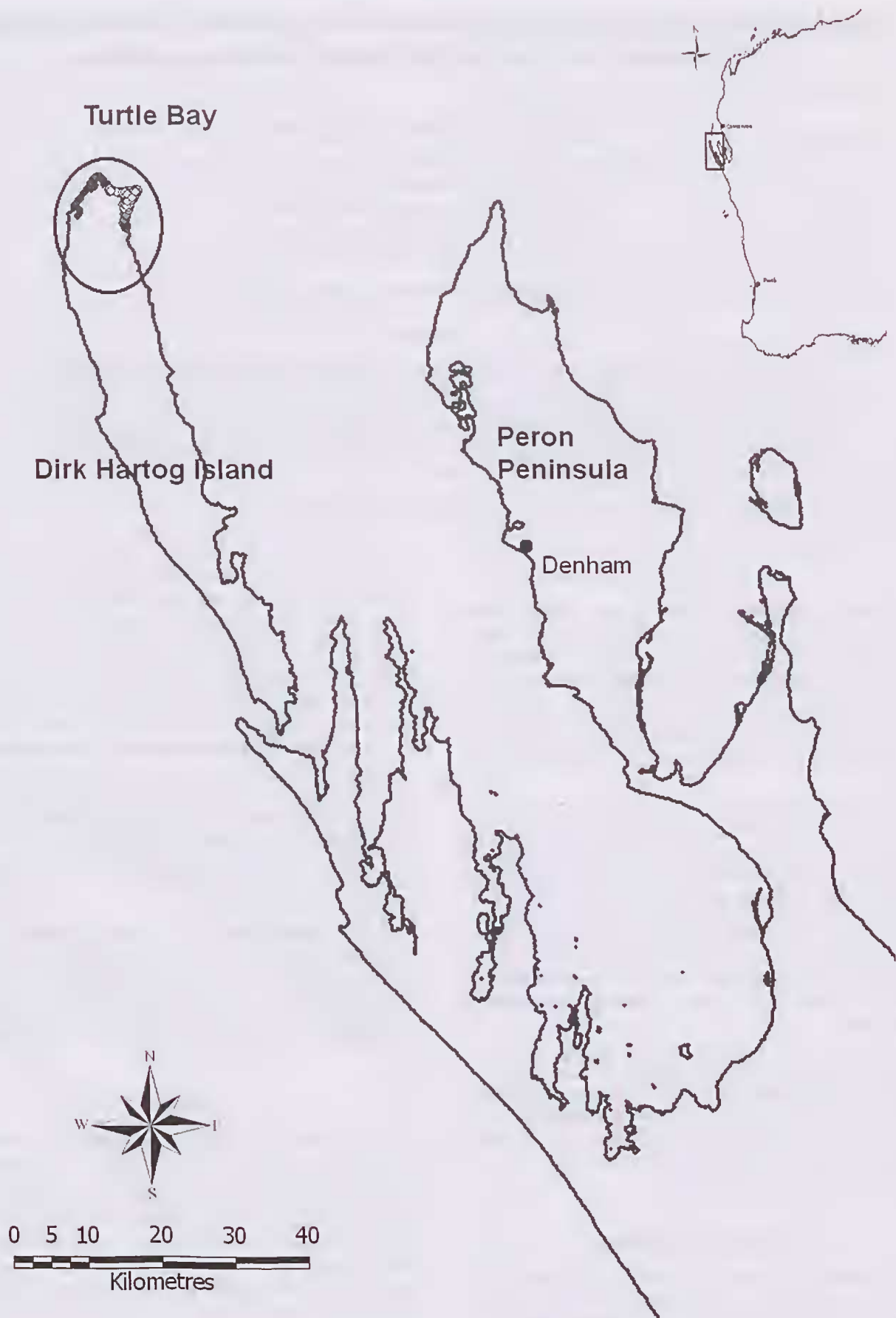


Figure 1. Location map of study area, Turtle Bay on Dirk Hartog Island (circled area).

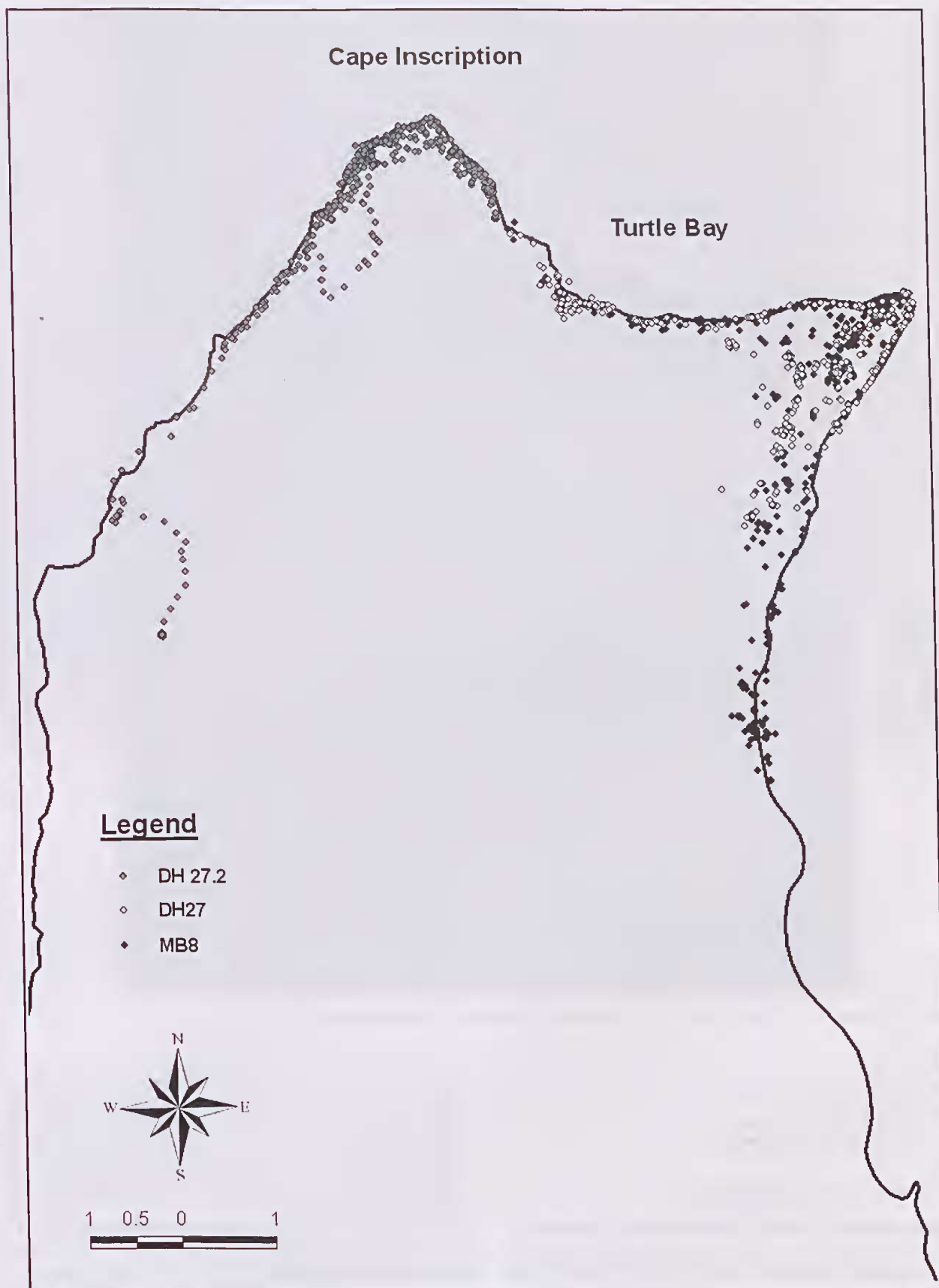


Figure 2. GPS-locations of three feral cats at and near Turtle Bay collected over a period of 10 days (MB8, 29.3-8.4.2009) and 30 days (DH27, DH27.2, 30.3- 30.4.2009).



Figure 3. Cat tracks on Turtle Bay beach next to Loggerhead Turtle nests (left from cat tracks).

unidentified rodent was located within 10 metres of the carcass of DH27.2 (see Figure 4).

Discussion

Many terrestrial species, both native and introduced, are known to predate turtle eggs or emergent hatchlings (Limpus 1973; Environment Australia 2003; Limpus 2008) however, predation by feral cats has rarely been demonstrated (Seabrook 1989). Hamann *et al.* (2006) suggested that predation by feral cats on Flatback turtles (*Natator depressus*) may be of management concern on West Island in the Sir Edward Pellew group, Northern Territory however, despite the presence of many cat

tracks at nest sites, predation by cats was not observed. The finding reported in this note, despite a small data set, confirms that feral cats, known to be opportunistic hunters (Jones & Coman 1981; Dickman 1996; Paltridge *et al.* 1997; Risbey *et al.* 1999), predate Loggerhead turtle hatchlings and provides further confirmation that feral cats will consume large prey items (Marks *et al.* 2006; Hetherington *et al.* 2007). The regurgitated prey items, (Figure 4) were entire and stained with the Rhodamine B dye used in the poison baits. The extent of the predation by feral cats on Dirk Hartog Island on turtle hatchlings is not known, but a planned feral cat eradication program on the island, proposed to commence in 2011 may improve hatching survival of Loggerhead turtles at Turtle Bay.



Figure 4. Regurgitated Loggerhead Turtle hatchling found near cat DH27. 2 (Note: red dye is Rhodamine B that was incorporated into the baits).

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